Santiago D Solares

List of Publications by Year
in descending order

103 papers	3,113 citations	218381 26 h-index	168136 53 g-index
106 all docs	106 docs citations	106 times ranked	3766 citing authors

#	Article	IF	Citations
1	Linear Artificial Molecular Muscles. Journal of the American Chemical Society, 2005, 127, 9745-9759.	6.6	660
2	Electromechanical Properties of Graphene Drumheads. Science, 2012, 336, 1557-1561.	6.0	264
3	Transparent, Anisotropic Biofilm with Aligned Bacterial Cellulose Nanofibers. Advanced Functional Materials, 2018, 28, 1707491.	7.8	142
4	Low-Temperature STM Images of Methyl-Terminated Si(111) Surfaces. Journal of Physical Chemistry B, 2005, 109, 671-674.	1.2	124
5	Nanoscale Interfacial Friction and Adhesion on Supported versus Suspended Monolayer and Multilayer Graphene. Langmuir, 2013, 29, 235-243.	1.6	112
6	Simulations of High-Pressure Phases in RDX. Journal of Physical Chemistry B, 2011, 115, 4378-4386.	1.2	108
7	Visualizing the Subsurface of Soft Matter: Simultaneous Topographical Imaging, Depth Modulation, and Compositional Mapping with Triple Frequency Atomic Force Microscopy. ACS Nano, 2013, 7, 10387-10396.	7.3	102
8	Frequency response of higher cantilever eigenmodes in bimodal and trimodal tapping mode atomic force microscopy. Measurement Science and Technology, 2010, 21, 125502.	1.4	69
9	Triple-frequency intermittent contact atomic force microscopy characterization: Simultaneous topographical, phase, and frequency shift contrast in ambient air. Journal of Applied Physics, 2010, 108, .	1.1	61
10	Mapping of conservative and dissipative interactions in bimodal atomic force microscopy using open-loop and phase-locked-loop control of the higher eigenmode. Applied Physics Letters, 2011, 99, .	1.5	61
11	Development of a ReaxFF Reactive Force Field for Aqueous Chloride and Copper Chloride. Journal of Physical Chemistry A, 2010, 114, 3556-3568.	1.1	55
12	Mechanism of humic acid fouling in a photocatalytic membrane system. Journal of Membrane Science, 2018, 563, 531-540.	4.1	46
13	Amplitude modulation dynamic force microscopy imaging in liquids with atomic resolution: comparison of phase contrasts in single and dual mode operation. Nanotechnology, 2013, 24, 135702.	1.3	40
14	Pseudomagnetic fields in a locally strained graphene drumhead. Physical Review B, 2014, 90, .	1.1	40
15	Modeling viscoelasticity through springâ€“dashpot models in intermittent-contact atomic force microscopy. Beilstein Journal of Nanotechnology, 2014, 5, 2149-2163.	1.5	39
16	Influence of Elastic Deformation on Single-Wall Carbon Nanotube Atomic Force Microscopy Probe Resolution. Journal of Physical Chemistry B, 2004, 108, 13613-13618.	1.2	37
17	Nanomechanical Stimulus Accelerates and Directs the Self-Assembly of Silk-Elastin-like Nanofibers. Journal of the American Chemical Society, 2011, 133, 1745-1747.	6.6	35
18	Bimodal atomic force microscopy driving the higher eigenmode in frequency-modulation mode: Implementation, advantages, disadvantages and comparison to the open-loop case. Beilstein Journal of Nanotechnology, 2013, 4, 198-207.	1.5	34

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19	Quantum Mechanics Calculations of the Thermodynamically Controlled Coverage and Structure of Alkyl Monolayers on Si(111) Surfaces. Journal of Physical Chemistry B, 2006, 110, 14842-14848.	1.2	32
20	Scanning Tunneling Microscopy of Ethylated Si(111) Surfaces Prepared by a Chlorination/Alkylation Process. Journal of Physical Chemistry B, 2006, 110, 23898-23903.	1.2	32
21	Nanoscale mechanics by tomographic contact resonance atomic force microscopy. Nanoscale, 2014, 6, 962-969.	2.8	32
22	Characterization of deep nanoscale surface trenches with AFM using thin carbon nanotube probes in amplitude-modulation and frequency-force-modulation modes. Measurement Science and Technology, 2008, 19, 015503.	1.4	30
23	Chlorinationâ˜Methylation of the Hydrogen-Terminated Silicon(111) Surface Can Induce a Stacking Fault in the Presence of Etch Pits. Journal of the American Chemical Society, 2006, 128, 3850-3851.	6.6	29
24	Numerical analysis of dynamic force spectroscopy using the torsional harmonic cantilever. Nanotechnology, 2010, 21, 075702.	1.3	29
25	Generalized stacking fault energy surfaces in the molecular crystal Î±RDX. Philosophical Magazine, 2012, 92, 3036-3050.	0.7	29
26	A Strain-Based Model for Mechanical Hemolysis Based on a Coarse-Grained Red Blood Cell Model. Annals of Biomedical Engineering, 2015, 43, 1398-1409.	1.3	29
27	Design of a nanomechanical fluid control valve based on functionalized silicon cantilevers: coupling molecular mechanics with classical engineering design. Nanotechnology, 2004, 15, 1405-1415.	1.3	28
28	Multifrequency Imaging in the Intermittent Contact Mode of Atomic Force Microscopy: Beyond Phase Imaging. Small, 2012, 8, 1264-1269.	5.2	26
29	Mechanisms of Single-Walled Carbon Nanotube Probeâ˜Sample Multistability in Tapping Mode AFM Imaging. Journal of Physical Chemistry B, 2005, 109, 11493-11500.	1.2	25
30	Modeling of the major gas vesicle protein, GvpA: From protein sequence to vesicle wall structure. Journal of Structural Biology, 2012, 179, 18-28.	1.3	25
31	Frequency, amplitude, and phase measurements in contact resonance atomic force microscopies. Beilstein Journal of Nanotechnology, 2014, 5, 278-288.	1.5	25
32	Energy transfer between eigenmodes in multimodal atomic force microscopy. Nanotechnology, 2014, 25, 475701.	1.3	25
33	Visible-Light-Responsive Photocatalyst of Graphitic Carbon Nitride for Pathogenic Biofilm Control. ACS Applied Materials & Interfaces, 2019, 11, 373-384.	4.0	25
34	Influence of the Carbon Nanotube Probe Tilt Angle on the Effective Probe Stiffness and Image Quality in Tapping-Mode Atomic Force Microscopy. Journal of Physical Chemistry B, 2005, 109, 16658-16664.	1.2	24
35	Theoretical Investigation of the Structure and Coverage of the Si(111)â˜OCH3Surface. Journal of Physical Chemistry B, 2006, 110, 8171-8175.	1.2	23
36	Eliminating bistability and reducing sample damage through frequency and amplitude modulation in tapping-mode atomic force microscopy. Measurement Science and Technology, 2007, 18, 592-600.	1.4	23

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37	Single-cantilever dual-frequency-modulation atomic force microscopy. Measurement Science and Technology, 2009, 20, 015501.	1.4	23
38	Characterization of surface stiffness and probeâ€“sample dissipation using the band excitation method of atomic force microscopy: a numerical analysis. Nanotechnology, 2012, 23, 015706.	1.3	23
39	On Mapping Subangstrom Electron Clouds with Force Microscopy. Nano Letters, 2011, 11, 5026-5033.	4.5	22
40	Density Functional Theory Study of the Geometry, Energetics, and Reconstruction Process of Si(111) Surfaces. Langmuir, 2005, 21, 12404-12414.	1.6	21
41	Calculation of standard viscoelastic responses with multiple retardation times through analysis of static force spectroscopy AFM data. Journal of Polymer Science, Part B: Polymer Physics, 2017, 55, 804-813.	2.4	21
42	Corrosion Resistance of Sulfurâ€“Selenium Alloy Coatings. Advanced Materials, 2021, 33, e2104467.	11.1	21
43	Direct Observation of Amyloid Nucleation under Nanomechanical Stretching. ACS Nano, 2013, 7, 7734-7743.	7.3	19
44	Multi-frequency tapping-mode atomic force microscopy beyond three eigenmodes in ambient air. Beilstein Journal of Nanotechnology, 2014, 5, 1637-1648.	1.5	19
45	Nanoscale effects in the characterization of viscoelastic materials with atomic force microscopy: coupling of a quasi-three-dimensional standard linear solid model with in-plane surface interactions. Beilstein Journal of Nanotechnology, 2016, 7, 554-571.	1.5	19
46	Selection of higher eigenmode amplitude based on dissipated power and virial contrast in bimodal atomic force microscopy. Journal of Applied Physics, 2014, 116, .	1.1	18
47	Directed patterning of the self-assembled silk-elastin-like nanofibers using a nanomechanical stimulus. Chemical Communications, 2012, 48, 10654.	2.2	17
48	Challenges and complexities of multifrequency atomic force microscopy in liquid environments. Beilstein Journal of Nanotechnology, 2014, 5, 298-307.	1.5	17
49	Real-Time Simulation of Isolated Biomolecule Characterization with Frequency and Force Modulation Atomic Force Microscopy. Journal of Physical Chemistry C, 2007, 111, 10029-10034.	1.5	16
50	Single Biomolecule Imaging with Frequency and Force Modulation in Tapping-Mode Atomic Force Microscopy. Journal of Physical Chemistry B, 2007, 111, 2125-2129.	1.2	16
51	Utilization of simple scaling laws for modulating tip-sample peak forces in atomic force microscopy characterization in liquid environments. Journal of Applied Physics, 2011, 110, 094904.	1.1	16
52	Dual frequency modulation with two cantilevers in series: a possible means to rapidly acquire tipâ€“sample interaction force curves with dynamic AFM. Measurement Science and Technology, 2008, 19, 055502.	1.4	15
53	Trade-offs in sensitivity and sampling depth in bimodal atomic force microscopy and comparison to the trimodal case. Beilstein Journal of Nanotechnology, 2014, 5, 1144-1151.	1.5	14
54	Viscoelastic parameterization of human skin cells characterize material behavior at multiple timescales. Communications Biology, 2022, 5, 17.	2.0	14

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55	Probing viscoelastic surfaces with bimodal tapping-mode atomic force microscopy: Underlying physics and observables for a standard linear solid model. Beilstein Journal of Nanotechnology, 2014, 5, 1649-1663.	1.5	13
56	Multifrequency force microscopy using flexural and torsional modes by photothermal excitation in liquid: atomic resolution imaging of calcite $(10ar{1}4)$. Nanotechnology, 2016, 27, 085702.	1.3	13
57	Extracting viscoelastic material parameters using an atomic force microscope and static force spectroscopy. Beilstein Journal of Nanotechnology, 2020, 11, 922-937.	1.5	13
58	Frequency and force modulation atomic force microscopy: low-impact tapping-mode imaging without bistability. Measurement Science and Technology, 2007, 18, L9-L14.	1.4	12
59	Optimization of the excitation frequency for high probe sensitivity in single-eigenmode and bimodal tapping-mode AFM. Nanotechnology, 2015, 26, 165703.	1.3	11
60	Theory of Single-Impact Atomic Force Spectroscopy in liquids with material contrast. Scientific Reports, 2018, 8, 7534.	1.6	11
61	Strain-Induced Spatially Resolved Charge Transport in 2H-MoTe2. ACS Applied Electronic Materials, 2021, 3, 3781-3788.	2.0	11
62	Artifacts in time-resolved Kelvin probe force microscopy. Beilstein Journal of Nanotechnology, 2018, 9, 1272-1281.	1.5	10
63	Numerical analysis of dynamic force spectroscopy using a dual-oscillator sensor. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2010, 28, C4E1-C4E11.	0.6	9
64	Utilizing Off-Resonance and Dual-Frequency Excitation to Distinguish Attractive and Repulsive Surface Forces in Atomic Force Microscopy. Journal of Computational and Nonlinear Dynamics, 2011, 6, .	0.7	9
65	A simple and efficient quasi 3-dimensional viscoelastic model and software for simulation of tapping-mode atomic force microscopy. Beilstein Journal of Nanotechnology, 2015, 6, 2233-2241.	1.5	9
66	Rhodamine-doped nanoporous polymer films as high-performance anti-reflection coatings and optical filters. Nanoscale, 2016, 8, 17675-17685.	2.8	9
67	Evolution of nano-rheological properties of NafionÂ® thin films during pH modification by strong base treatment: A static and dynamic force spectroscopy study. Journal of Applied Physics, 2016, 119, .	1.1	9
68	Imaging of surface nanobubbles by atomic force microscopy in liquids: Influence of drive frequency on the characterization of ultrasoft matter. Microscopy Research and Technique, 2017, 80, 41-49.	1.2	9
69	Towards 4-dimensional atomic force spectroscopy using the spectral inversion method. Beilstein Journal of Nanotechnology, 2013, 4, 87-93.	1.5	8
70	Material property analytical relations for the case of an AFM probe tapping a viscoelastic surface containing multiple characteristic times. Beilstein Journal of Nanotechnology, 2017, 8, 2230-2244.	1.5	8
71	Experimental approach for selecting the excitation frequency for maximum compositional contrast in viscous environments for piezo-driven bimodal atomic force microscopy. Journal of Applied Physics, 2016, 119, .	1.1	7
72	High-stress study of bioinspired multifunctional PEDOT:PSS/nanoclay nanocomposites using AFM, SEM and numerical simulation. Beilstein Journal of Nanotechnology, 2017, 8, 2069-2082.	1.5	7

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73	Analysis and modification of defective surface aggregates on PCDTBT:PCBM solar cell blends using combined Kelvin probe, conductive and bimodal atomic force microscopy. Beilstein Journal of Nanotechnology, 2017, 8, 579-589.	1.5	7
74	Few-cycle Regime Atomic Force Microscopy. Scientific Reports, 2019, 9, 12721.	1.6	7
75	Acquisition of timeâ€“frequency localized mechanical properties of biofilms and single cells with high spatial resolution. Nanoscale, 2019, 11, 8918-8929.	2.8	7
76	Linear Viscoelasticity: Review of Theory and Applications in Atomic Force Microscopy. Reports in Mechanical Engineering, 2021, 2, 156-179.	4.9	7
77	Soft sample deformation, damage and induced electromechanical property changes in contact- and tapping-mode atomic force microscopy. Surface Topography: Metrology and Properties, 2020, 8, 045004.	0.9	7
78	Computational study of tip apex symmetry characterization in high-resolution atomic force microscopy. Journal Physics D: Applied Physics, 2013, 46, 155307.	1.3	6
79	Friction imprint effect in mechanically cleaved BaTiO3 (001). Journal of Applied Physics, 2014, 116, .	1.1	6
80	Imaging of subatomic electron cloud interactions: Effect of higher harmonics processing in noncontact atomic force microscopy. Applied Physics Letters, 2012, 100, 163104.	1.5	5
81	Imaging of viscoelastic soft matter with small indentation using higher eigenmodes in single-eigenmode amplitude-modulation atomic force microscopy. Beilstein Journal of Nanotechnology, 2018, 9, 1116-1122.	1.5	5
82	A new method for obtaining model-free viscoelastic material properties from atomic force microscopy experiments using discrete integral transform techniques. Beilstein Journal of Nanotechnology, 2021, 12, 1063-1077.	1.5	5
83	Analysis of the contrast mechanism in bimodal atomic force microscopy combining amplitude modulation and band excitation. Journal of Applied Physics, 2012, 111, 054909.	1.1	4
84	Exploration of AFM Imaging Artifacts Occurring at Sharp Surface Features When Using Short Carbon Nanotube Probes and Possible Mitigation With Real-Time Force Spectroscopy. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2010, 132, 030904.	1.3	3
85	On the frequency dependence of viscoelastic material characterization with intermittent-contact dynamic atomic force microscopy: avoiding mischaracterization across large frequency ranges. Beilstein Journal of Nanotechnology, 2020, 11, 1409-1418.	1.5	3
86	Direct measurement of storage and loss behavior in AFM forceâ€“distance experiments using the modified Fourier transformation. Journal of Applied Physics, 2022, 131, .	1.1	3
87	Multi-Frequency Atomic Force Microscopy Combining Amplitude- and Frequency-Modulation Techniques. Materials Research Society Symposia Proceedings, 2012, 1422, 19.	0.1	2
88	Influence of fabrication parameters on bond strength of adhesively bonded flip-chip interconnects. Journal of Adhesion Science and Technology, 2014, 28, 1167-1191.	1.4	2
89	Subatomic Resolution in Noncontact Atomic Force Microscopy: Electron Cloud Interactions or Harmonics Processing Artifacts?. , 2012, , .		1
90	Probe assisted localized doping of aluminum into silicon substrates. Journal of Applied Physics, 2019, 125, 075706.	1.1	1

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91	Current measurements in the intermittent-contact mode of atomic force microscopy using the Fourier method: a feasibility analysis. Beilstein Journal of Nanotechnology, 2020, 11, 453-465.	1.5	1
92	GUIDELINES TO SIMULATE LINEAR VISCOELASTIC MATERIALS WITH AN ARBITRARY NUMBER OF CHARACTERISTIC TIMES IN THE CONTEXT OF ATOMIC FORCE MISCROSCOPY. Facta Universitatis, Series: Mechanical Engineering, 2021, 19, 133.	2.3	1
93	Calculation of Isothermal Intrinsic Compressibility and Compression of GvpA Protein in Halobacterium sp. NRC-1 Using Molecular Modeling and Dynamics. , 2009, , .		0
94	Computational Development of Single- and Dual-Frequency Modulation Atomic Force Spectroscopy for Ambient Air Applications. , 2009, , .		0
95	Corrigendum on 'Numerical analysis of dynamic force spectroscopy using the torsional harmonic cantilever'. Nanotechnology, 2010, 21, 339804-339804.	1.3	0
96	Single-cantilever dual-frequency-modulation atomic force microscopy. Measurement Science and Technology, 2010, 21, 089804.	1.4	0
97	Trimodal Tapping-Mode Atomic Force Microscopy: A Possible Method for Simultaneous Measurement of Conservative and Dissipative Interactions. , 2011, , .		0
98	Numerical Analysis of the Band Excitation AFM Method: Examining the Characteristics of the Excitation Signals and the Corresponding Response Behavior at the Cantilever Tip. , 2011, , .		0
99	Utilization of Simple Scaling Laws for Modulating Tip-Sample Interaction Forces in Aqueous Environment AFM Characterization: Application to the Self-Assembly of Protein Polymers. , 2011, , .		0
100	Exploring Dynamic Non-Idealities in Multi-Frequency Atomic Force Microscopy. , 2012, , .		0
101	Enhanced Topographical Characterization of Sharp Step Edges With Simultaneous AFM Imaging and Force Spectroscopy. , 2010, , .		0
102	Numerical Analysis of Sub-Atomic AFM Imaging in Ultra-High Vacuum: Coupling Quantum Mechanics With Continuum Dynamics. , 2011, , .		0
103	3-Dimensional Force Curve and Dissipation Model Acquisition Using the Spectral Inversion Method in Tapping Mode AFM. , 2011, , .		0